

DECLARATION OF DR. DAVID B. WAISEL, M.D.

I. Expert Qualifications

I, Dr. David B. Waisel, M.D., am currently a practicing anesthesiologist at St. Jude Children's Research Hospital in Memphis, Tennessee. I served as a Professor of Anesthesiology at Yale School of Medicine from September 2020 through December 2023, and an Associate Professor of Anesthesia at Harvard Medical School from July 2006 through August 2020. I have been practicing clinical anesthesiology for approximately thirty (30) years, and I have administered anesthesia to more than 20,000 patients. I am currently licensed to practice in Tennessee.

I was certified as a Diplomate by the American Board of Anesthesiology in 1994. I performed voluntary recertification in 2005 and 2016. I was also certified as a Diplomate by the American Board of Anesthesiology for Pediatric Anesthesiology in 2013 and performed voluntary recertification in 2024. My complete curriculum vitae is included with this report as an Attachment.

II. Referral Question

I have been asked by counsel for Plaintiff Marion Bowman to provide an expert medical opinion as to whether South Carolina provides him with sufficient information to assess the risks and benefits of execution by lethal injection as compared to the state's other available methods of execution.

III. Documents and Resources Considered

I have reviewed the documents provided to me in this matter, as well as other readily available reference materials. The most notable materials include:

- Autopsy report for Richard Moore
- Declaration of Dr. Michaela Almgren
- Press Conference following execution of Freddie Eugene Owens
- Press Conference following execution of Richard Moore

My opinions are based on the information available to me as of the date of this report. Should further information become known to me through additional documentation, reports, or testimony relevant to my opinions in this matter, or should I receive additional requests from Plaintiff's counsel, I may supplement this report as needed.

IV. Conclusions and Opinions

My understanding is that death-sentenced prisoners in South Carolina are offered the option of execution by lethal injection, firing squad, or electrocution. This declaration concerns lethal injection only.

Based upon the information I have now, it is my opinion to a reasonable degree of medical certainty that South Carolina failed to administer five grams of effective pentobarbital during the execution of Richard Moore. As a result, there is a substantial risk that he experienced needless and extensive suffering during his execution.

It is my opinion to a reasonable degree of medical certainty that, given the State's inadequate transparency, there is insufficient information about the lethal injection process for anyone to assess its risks and benefits as compared to execution by firing squad or electrocution.

V. Discussion and Analysis

1. I have been told that executions in South Carolina call for the administration of pentobarbital via intravenous injection. Pentobarbital is a member of a class of drugs called barbiturates. Barbiturates act on the body by depressing various organ systems, including the central nervous system. Pentobarbital is classified as "short-acting," which means that it has an initial onset of action within one arm-brain circulation time, which is usually considered to be less than 1 minute and is often more rapid.
2. Furthermore, IV drugs, including barbiturates, have a remarkably consistent drug-specific onset upon reaching a functioning intravenous circulation. I would expect to see even greater consistency of effect with higher doses. For instance, if a patient received a 350 mg/kg dose, I would expect a somewhat quicker effect in a 50 kg patient and a somewhat slower onset in heavier patients in which the per kg basis is less than 5 mg/kg (e.g. 100 kg). Larger doses, however, make such distinctions non-consequential. The larger doses mean that there should be remarkable consistency in the onset of action.
3. I have been informed that South Carolina prison officials are declining to provide death-sentenced inmates with any specific information about the potency, purity, or stability of the particular dose of pentobarbital to be used in their executions, with the sole exception of providing a general assurance that the drugs have been tested and approved by the forensic lab of the S.C. Law Enforcement Division (SLED). State prison officials are also declining to provide death-sentenced inmates with any of the SLED lab reports or results.
4. I have reviewed the affidavit of Dr. Michaela Almgren, which details the information needed to ensure that the pentobarbital South Carolina uses in execution is effective. I concur with her conclusions, and like Dr. Almgren, it is my opinion that the information she identifies is necessary for a death-sentenced inmate to be able to make a meaningfully informed decision about the relative risks of lethal injection compared to the other available execution methods.
5. The concerning circumstances surrounding the two most recent executions in South Carolina—which indicate that problems occurred—amplify the need for prisoners to be provided with information about the execution drugs going forward.
6. Records detailing the precise actions taken to carry out the executions by lethal injection of Richard Moore (November 1, 2024) and Khalil Allah (Freddie Owens) (September 20, 2024) are unavailable. This limits the ability to evaluate precisely what occurred during

those executions, which makes it difficult to assess the risks posed by this method. However, what we do know about each execution is disturbing.

7. Mr. Moore's autopsy revealed he was administered "2 x 2.5 g pentobarbital [5 grams] at 18:01" and "a second round of 2 x 2.5 g [5 grams] at 18:12." He was pronounced dead 23 minutes after the administration of the initial 5 grams of pentobarbital at 18:24. Given the extraordinarily high dose of pentobarbital administered at the outset of the execution, it is concerning that two separate five-gram doses of pentobarbital were required before Richard Moore was declared dead. A properly administered dose of five grams of effective pentobarbital should eliminate all breathing within a minute or less.
8. I believe to a high degree of medical certainty that it is physiologically and pharmacologically impossible for Mr. Moore to remain alive for ten minutes after a dose of five grams of fully-potent pentobarbital, unless that dose was not delivered completely.
9. Mr. Moore's autopsy also documents that he suffered from pulmonary edema, a complication that, in my experience, occurs in many, if not most, executions involving pentobarbital. Generally, pulmonary edema is when fluid from the bloodstream floods the lungs, making it more difficult to breathe, and causing sensations of shortness of breath similar to the experience of drowning. While pulmonary edema can have many causes, it is my belief with a reasonable degree of medical certainty that Mr. Moore's edema was caused by the obstruction of his upper airway from the sedation effects of pentobarbital, even as he continued breathing, which caused fluid to seep out of the blood vessels inside his lungs. Mr. Moore's autopsy report documents clinical features of this type of edema—called negative pressure pulmonary edema—in that he had pink froth in his airway. Its onset would occur almost immediately following the initial IV administration of pentobarbital, as the tissues in his upper airways collapsed and his vocal cords closed. If sensate, a person whose lungs filled with the fluid of pulmonary edema would suffer feelings of drowning and suffocation. In an execution setting where the administered pentobarbital is either not completely effective or is delivered ineffectively, the pentobarbital would affect the prisoner's airways and lead to pulmonary edema while simultaneously failing to sufficiently anesthetize the prisoner to these torturous sensations. It appears likely that during Mr. Moore's execution, he consciously experienced feelings of drowning and suffocation during the 23 minutes that it took to bring about his death.
10. While no autopsy was performed on Mr. Owens, I listened to a press conference given by the South Carolina Department of Corrections, which reported that his execution began at 6:35 p.m., and that he was declared dead at 6:55 p.m. Given what happened in Mr. Moore's execution, I would want to know whether Mr. Owens's twenty-minute execution also required a second dose of five grams of pentobarbital. Because a properly administered dose of effective pentobarbital should stop breathing within a minute, the fact that Mr. Owens' execution lasted 20 minutes indicates that a problem of some kind occurred.
11. The absence of drug property information is even more concerning for Marion Bowman in light of his body composition, which I am informed is 6'4", 375 lbs. This is a body mass index of 46, which is in the category of "Severely Obese." Peer-reviewed published

outcome data indicate that the prevalence of difficult IV access has been reported at 3.1 – 5.9%, depending on many characteristics including BMI.¹ Bowman's execution process could become especially complicated, and even torturous, in the event that problems caused by an ineffective IV were compounded by an ineffective dose of pentobarbital.

12. On the basis of all the materials I have reviewed, it is my conclusion that the vast lacunae of available information makes it impossible for Mr. Bowman and his counsel to make an informed decision about his preferred execution method.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 10, 2025.

/s/ David B. Waisel
David B. Waisel, M.D.

¹ Difficult IV access can be defined as whether obtaining access on the first attempt is unsuccessful or whether access is unable to be obtained. Data typically coalesces around 3-30% of difficult IV access for patients with minimal risk factors and greater than 50% of difficult IV access for patients with significant risk factors. See Heart & Lung 2020;49:273-286; J Clin Med 2020;9:799; J Clin Nurs 2017;26:4267-75; Br J Anaesth 2018;121:358-66; BioMedical Material and Engineering 2013;23:93-108, among others.